ABSTRACT OF THE DISCLOSURE

The addition of thin coatings (less than and approaching monomolecular coatings) of persistent release materials comprising preferred compounds of the formula:

RELEASE-M$(X)_{n-1}$-

RELEASE-M$(X)_{n-m-1}$ Q_m,

or

RELEASE-M$(OR)_{n-1}$-, wherein

RELEASE is a molecular chain of from 4 to 20 atoms in length, preferably from 6 to 16 atoms in length, which molecule has either polar or non-polar properties;

M is a metal atom, semiconductor atom, or semimetal atom;

X is halogen or cyano, especially Cl, F, or Br;

Q is hydrogen or alkyl group;

m is the number of Q groups;

R is hydrogen, alkyl or phenyl, preferably hydrogen or alkyl of 1 to 4 carbon atoms; and;

n is the valence –1 of M,

and n-m-1 is at least 1

provides good release properties. The coated substrates are particularly good for a lithographic method and apparatus for creating ultra-fine (sub-25 nm) patterns in a thin film coated on a substrate is provided, in which a mold having at least one protruding feature is pressed into a thin film carried on a substrate. The protruding feature in the mold creates a recess of the thin film. The mold is removed from the film. The thin film then is processed such that the thin film in the recess is removed exposing the underlying substrate. Thus, the patterns in the mold is replaced in the thin film, completing the lithography. The patterns in the thin film will be, in subsequent processes, reproduced in the substrate or in another material which is added onto the substrate.

"Express Mail" mailing label number: EL873861011US
Date of Deposit: October 29, 2001
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